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FOR OFFICIAL USE.

BOARD OF EDUCATION.

SYLLABUS

FOR

The Board's Final Examination of Students in Training Colleges,

1927.

LONDON:
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N.B.—Alterations in the Syllabus are indicated by a marginal line.

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PREFATORY NOTE.

The following statement of the arrangements applicable to the Final Examination for 1927 which has already been communicated to Training Colleges, is printed here for the convenience of students. It will be understood that these arrangements may as regards subsequent years be subject to modification in the light of the Report of the Departmental Committee on the Training of Teachers.

Conditions for a Pass.

1. In order to pass in the Final Examination a student will be required—

(*a*) To obtain a sufficient aggregate of marks on the subjects of the examination taken as a whole;

(*b*) To pass in the Principles and Practice of Teaching, and in English;

(*c*) To pass either in all, or in all but one, of the other subjects of his approved Course.

2. Cases of students who satisfy conditions (*b*) and (*c*) of paragraph 1, but who fail to satisfy condition (*a*) because they do not obtain a sufficient aggregate of marks on the examination as a whole, will be referred by the Board to the Training College Authorities for their observations. A student whose case is referred under this paragraph may after consideration of the recommendation of the College Authorities either be allowed to pass or be required to present himself for examination again in such subject or subjects as the Board may determine.

3. A student who fails to satisfy conditions (*b*) or (*c*) of paragraph 1, *i.e.*, a student who fails in the Principles and Practice of Teaching, or in English, or in more than one subject, will be regarded as failing in the examination. If he fails in not more than two subjects, he will be allowed to qualify for a Certificate by passing at a subsequent examination in the subject or subjects in which he has failed. If he fails in more than two subjects, he will be required to enter for the whole examination again, in order to qualify for the Certificate.

4. For the purpose of the above Rules (i) the Principles and Practice of Teaching, and (ii) Hygiene and Physical Training, will each count as a single subject. Students will be required to reach a minimum standard in Practical Teaching in order to pass in the Principles and Practice of Teaching.

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Entries on the Certificate.

5. The Certificate will show—

(i) The names of all subjects in which a student has passed, whether at his first examination or on re-examination, distinguishing courses of Ordinary and Advanced standard;

(ii) The name of any subject in which a student has obtained distinction or credit at his first examination.

6. Marks of distinction may be obtained in any course of advanced standard, or in the Principles and Practice of Teaching, or in Hygiene and Physical Training. Marks of credit may be awarded in any course of ordinary standard other than the Principles and Practice of Teaching and Hygiene and Physical Training. The credit standard will be higher than in the past.

Aggregate of Marks.

7. The aggregate of marks required for the purpose of Rule 1 (*a*) will be a prescribed percentage of the highest possible marks obtainable by a student who takes the normal number of subjects required by Article 40 (*b*) of the Regulations for the Training of Teachers, namely, the Principles and Practice of Teaching, Hygiene and Physical Training, and five general subjects.

8. Students who by virtue of taking an Advanced Course are allowed to offer four general subjects instead of five, will not be able to obtain so large an aggregate of marks as students who take five general subjects. In order to compensate for this the aggregate marks obtained by any student will be increased by a bonus in respect of each Advanced Course in which he is examined.

9. When a student takes six general subjects, only the marks for the five general subjects in which the student does best will be taken into account for the purpose of the aggregate of marks.

Failure in an Advanced Course.

10. A student who fails in an Advanced Course may, if his marks in that Course reach a sufficient standard, be regarded as having passed the corresponding Ordinary Course if there is one, and a pass in the Ordinary Course will be entered on the Certificate. Such cases will be specially considered with a view to determining whether the failure in the Advanced Course should be regarded as a failure in the subject for the purpose of a pass in the examination.

PROFESSIONAL SUBJECTS.

PRINCIPLES OF TEACHING.

Course for Two-Year Students.

The syllabus provides *three* alternative schemes of study.

The *first*, consisting of the General Course and the Special Course A, sets out the scheme of work to be followed by students who wish to prepare themselves to teach in public elementary schools where advanced instruction under the Act of 1918 is organized for boys and girls over 11 years of age.

The *second*, consisting of the General Course and the Special Course B, sets out a syllabus of work for students who wish to prepare themselves to teach in a public elementary school where scholars up to the age of 14 may be taught.

The *third*, consisting of the General Course and the Special Course C, is for students who wish to prepare themselves to teach in Infants' and Junior Schools of various types.

The General Course is common to all classes of students, and the examination on this section of the syllabus must be taken by all.

Special Course A requires that the student shall concentrate mainly on the study and practice of some one main branch or subject of the curriculum adopted in schools where advanced instruction is provided. Students who offer this course will be expected to take an Advanced Course in the corresponding academic subject for the Board's examination, or for a College Alternative Examination, in all cases where they do not take the subject as part of a Degree Course, and their work in Special Course A will be assessed with reference to their work in the corresponding academic subject.

The above regulations do not apply to students taking Special Course B or Special Course C. The examination paper on Special Course B will, however, be so compiled as to allow students to concentrate on questions dealing with the teaching of one or more subjects to which they have given special attention.

Books for special study are not prescribed in any part of the syllabus. It is assumed that the College Authorities will require the students to study such books as are likely to be of use, having regard to the general aims of the professional training in the college.

The syllabuses are intended to indicate the general lines on which the study of the Principles of Teaching may be carried on; it is not suggested either that all students will necessarily study the whole of the syllabuses proper to their courses or that

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equal importance necessarily attaches to all parts of the syllabuses. Provision will be made in the examination papers, so far as is possible within reasonable limits, for a considerable diversity in the treatment of the syllabuses by offering students a wide choice of questions.

Individual students may, if they so desire, submit an Essay or Thesis written during their two years' course and dealing with some subject arising out of, or directly connected with, their work in Principles and Practice of Teaching. Any such Essays or Theses will be taken into account when the results of the examination are under consideration.

These Essays or Theses, after being corrected and marked by the College Authorities, should be sent to the Board not later than the date of the Final Examination.

A student who fails in the Principles and Practice of Teaching will be held to have failed in the examination, and will be required to pass a further test in the Principles and Practice of Teaching in order to qualify for the certificate.

General Course.

The functions and ideals of public elementary schools, and their relation to other branches of the national system of education; their connexion with the home, the home surroundings, and with other agencies affecting the welfare and education of children.

The conditions of healthy work in school; school buildings, playgrounds, playing-fields, equipment and apparatus. Work and play in the open air. Training in good physical habits.

The study of children's development from the point of view of physique, intelligence, and character, based as far as possible on observation of individuals and of classes.

An elementary study of the means by which children acquire knowledge and skill, including such as the following:—

The senses and sense-training; instincts and their relation to children's interests; forms of activity and of expression; the function of play; imitation and suggestion; habits and their formation; memory and imagination; interest and attention; the formation of clear and connected ideas; simple processes of reasoning; growth of the will.

The aims and methods of discipline; training in responsibility, in the right use of freedom and in the social virtues.

The stages of the school course; the junior stage, the middle stage, the senior stage. The classification, curriculum, and general methods of teaching appropriate to each stage.

The choice of the curriculum; its content, suitability, varieties; the connexion and development of subjects.

Methods of teaching and of study in general. Forms and characteristics of class-teaching, of sectional work, and of individual study. Exposition, illustration, questioning, correction. The importance of practical work; the use of books.

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The teacher's preparation of lessons and of series of lessons. The selection of suitable material and of methods of treatment. Uses and methods of revision, testing, examination. The arrangement of time-tables.

Special Course A.

The detailed study and practice of the methods of teaching one of the following subjects in schools offering advanced instruction to scholars over 11 years of age:—

1. English.
2. Arithmetic and Mathematics.
3. Geography.
4. History.
5. Physical Science.
6. Biological Science.
7. Welsh.
8. Music.*
9. Drawing.*

Students will be expected to show an intimate knowledge of the subject chosen for special study, not only as a part of their own general education but also as it may be adapted for school purposes.

The examination paper will deal mainly with the teaching of the special subject chosen. The paper will also contain some compulsory questions on the teaching of English and Arithmetic.

Special Course B.

The principles and methods of teaching the subjects, including Drawing and Handwork, which usually form part of the curriculum of elementary schools for scholars 7 to 14 years of age, as generally outlined in the Board's "Suggestions to Teachers." Questions on the teaching of Music, Hygiene, and Physical Training will not be set in the examination paper, as such questions will appear in the special papers on those subjects.

Students will be at liberty to answer the required number of questions either by free choice from the paper as a whole or from one or more sections dealing with the teaching of the separate subjects. Some compulsory questions will, however, be set on the teaching of English and of Arithmetic which must be attempted by all students.

Welsh Training Colleges may, if they wish, provide an additional course in Bilingual Education. This course should aim at giving to students definite guidance in the methods of teaching Welsh and English (language and literature) in *(a)* Welsh-speaking areas, *(b)* English-speaking areas, *(c)* Bilingual areas; and students who follow it will be required to take a special paper which will be set and marked by the College Authorities. The question paper should be submitted in advance for the Board's approval, and the worked papers, after having been marked by the College Authorities, should be sent to the Board not later than the date of the Final Examination. The marks gained on this special paper will be taken into account when the results of the examination are under consideration.

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* Special application must be made by the Authorities of Colleges who select these subjects.

Special Course C.

The subjects and methods of instruction and training suitable to Infants and Junior Schools, as indicated in the Board's "Suggestions to Teachers." Students will be expected to have made a more particular study of the physical and mental development of young children, and they should be acquainted with the literature, music, games, etc., appropriate to the needs of such children.

Advanced Course.

(Third-Year Students only.)

Students taking a Third-Year Course of Training, either directly following their Two-Year Course or after an interval of teaching service in schools, will not be expected to follow a syllabus prescribed by the Board, nor will they be examined at the end of their third year by the Board. The choice of a course of study and practice for such students will be left to the Training College Authorities, who should, for this purpose, have regard, amongst other things, to the nature of the student's previous training and experience and to the facilities which the College is able to offer for advanced study and training in teaching.

The suggested courses should be submitted to the Board for approval at the same time as the applications for recognition of Third-Year Students. The Board will reserve the right to modify or veto such proposals as in their opinion are unsuitable. In no case will a suggested course be accepted which fails to make full provision for practical school experience adapted to the special character of the studies proposed in the Principles of Teaching.

The examination at the end of the course will be conducted by the College Authorities. The marked papers and the tabulated results should be submitted to the Board before publication of the results, together with the recommendation of the College as to the results of the examination. When the nature of the year's study seems to require such a course, records of the student's work through the year may be submitted to the Board in lieu of the whole or part of the usual written examination or in addition to the written examination.

In all estimates of results, great importance will be attached by the Board to the nature, amount, and efficiency of the student's practical work in schools.

Special Courses.

These courses are intended only for students who are being trained with a view to work in Special Elementary Schools. No student may take more than one of these courses. Such a course may be taken either (*a*) in substitution for the Ordinary Course in the Principles of Teaching by a Two-Year Student or One-Year Student; or (*b*) as part of the work for a third year by a student who has completed a Two Years' Course.

1.

SPECIAL COURSE FOR TEACHERS OF BLIND CHILDREN.

1. *Physiology.*

   The syllabus of instruction in Hygiene should be modified and amplified so far as may be necessary.

2. *Psychology.*

   Educational limitations imposed by total or partial blindness.

   Cutaneous and muscular senses the main avenues of observation.

   Preservation of the tactile sense.

   Speech in the training of the blind.

   The part played by Physical Training, Music, Manual Work, and Literature in the training of the blind.

   The aim of blind education to secure independence in movement, industrial aptitude and refinement.

3. *Special Subjects.*

   Braille Reading and Writing as used in schools (excluding Grade III).

   The teaching of Practical Number and Arithmetic to the blind.

   The teaching of Geography to the blind.

   Physical training for the blind. Gait. Attitude.

   Manual occupations suited to blind children of various ages (*either* Kindergarten *or* Senior occupations to be offered by each student).

   The training of blind children in personal habits.

2.

SPECIAL COURSE FOR TEACHERS OF DEAF CHILDREN.

1. *Physiology.*

   The syllabus of instruction in Hygiene should be modified and amplified so far as may be necessary.

2. *Psychology.*

   The limitations to intelligent verbal expression imposed by loss of hearing.

   The limitation of the totally deaf, the congenitally deaf, the partially deaf, the semi-deaf, the semi-mute, and the hard of hearing.

   Language for the deaf. Modes of communication. Speech, lip-reading, writing, and finger spelling.

3. *Special Subjects.*

The oral method. The development of speech among the deaf.

Language. The development of terms, actions, ideas. Verbal inflection. The teaching of Reading to the deaf. Conjunctives. Subject-matter for language teaching.

Practical Number and Arithmetic for the deaf.

Manual occupations (*either* Kindergarten *or* Senior occupations to be offered by each student).

Physical training of the deaf. Gait. Attitude.

3.

SPECIAL COURSE FOR TEACHERS OF MENTALLY DEFECTIVE CHILDREN.

1. *Physiology.*

The syllabus of instruction in Hygiene should be modified and amplified so far as may be necessary.

2. *Psychology.*

The mental signs of deficiency; disturbances of ethical and reasoning power, memory, response, volition, and volitional balance; nerve flabbiness.

Disturbances of excess or defect in the lower faculties.

Spurious mental defect due to depressing physical conditions.

The effect of training on mental deficiency, real and spurious.

3. *Special Subjects.*

Speech training. Types of speech defect and how to deal with them.

The division of subjects of instruction into small steps adapted to defectives.

Physical training adapted to defectives.

Manual occupations (*either* Kindergarten *or* Senior occupations to be offered by each student).

Training in personal habits.

THE PRACTICE OF TEACHING.

The practical training of students may be given only in schools approved for that purpose by the Board, and the responsibility for the conduct of the practice will rest with the officers of the Training College. It should be so organised that the number assigned for supervision to one officer, at one time, should never exceed ten; and the officers employed should, as a rule, be present in the schools so used during the whole time of the practice of the students for whom they are responsible

The greater part of the practice should be continuous, and no period less than a meeting of a school can be counted as effective practice.

All students, whether tested in teaching by H.M. Inspector or not, must be prepared to submit their own records of practical work for his examination, and the College records and notes on individual students must in the same way be submitted to him when he visits the College. It is expected that systematic provision will be made for enabling students to see work being done by teachers of special competence and experience, who will explain the procedure followed and discuss it with the students. The teachers of special subjects in Training Colleges should, as a rule, be qualified to take an active part in this kind of work and should share in the conduct of technical exercises. "Criticism" or "Open" Lessons should, as a rule, be conducted with small groups of students, but opportunity should be found for some such exercises to be seen by the greater part of the staff together, in order to secure agreement as to aim and procedure.

Students should be exempted during the period of school practice from all ordinary lectures and work in order to avoid undue pressure, and in order that they may concentrate their full attention upon this most important part of their training.

In the case of students who are taking a Special Course in the Principles of Teaching, the practical work should be arranged as far as possible with reference to that course.

READING AND RECITATION.

Students will be required to read aloud passages from the books prescribed for general and detailed study under the head of English.

Passages from standard English authors should be learned by heart. In Welsh Colleges some of the passages selected may be in Welsh.

The teaching of the subject should include such a knowledge of Elementary Practical Phonetics as will enable the students to analyse and classify the sounds of spoken English, and to explain the mechanism of their production in terms suitable for teaching children how to speak and read distinctly.

HANDWORK.

All students are expected to receive some instruction in the Principles of Educational Handwork during their course of training. This instruction should deal with the following :—

(*a*) Consideration of the place of Handwork in the curriculum of a School.
(*b*) Correlation of Handwork with other subjects.
(*c*) Operations suitable for the child at various stages of school life.
(*d*) Study of suitable materials and courses of work.

The instruction here referred to can be introduced most naturally in connexion with the instruction in the methods of teaching the several subjects of the curriculum, and it will not be tested separately by the Board.

HYGIENE.

1. The following syllabus is intended to serve as a model for general guidance, and the Board's Final Examination for students in Training Colleges will include a paper in Hygiene containing questions based on this syllabus.

2. The course is intended to familiarise the student with the general principles of Hygiene with a view to their practical application by him, when he has become a teacher, in the educational and personal interests of the children who are placed in his charge. It is not meant to be a syllabus upon which instruction is to be given to children, and no attempt should be made to use it in that way. Nevertheless, it should be borne in mind that the ultimate purpose of this Course is that the teacher should first practise a hygienic way of life and, secondly, be able to give simple practical lessons in Hygiene to his scholars.

3. The lectures, generally speaking, should not be too formal in presentation, though they will necessarily involve full and careful preparation on the part of the lecturer. The use of technical and medical terms should, as far as possible, be avoided and the subject should be taught in a simple and practical manner with clear emphasis upon the things that principally matter. The aim should be to develop in the student a right attitude of mind and life to questions affecting the physical and social welfare of the child rather than to provide a body of knowledge. In the apportionment of time allotted to the subject full recognition should be made of the need for the discussion of points by students in groups and for carefully directed private study.

4. The lecturer should seek to keep abreast of all modern developments in school hygiene. Visits should be arranged wherever practicable to any type of school or institution exhibiting points of interest in regard to child life and school hygiene, including elementary or secondary schools, special schools of various types, school clinics, school canteens or feeding centres, school baths, nursery schools and crèches. Full use should be made of the opportunity of visits to the practising schools for the training of the students by first hand methods in the hygiene both of school and scholar, and students should be encouraged during vacations to visit places and institutions of interest from the point of view of health and education, to make notes, sketches and diagrams, and to report on return to College. Proper attention should be given to suitable current literature, including the Annual Reports of the Chief Medical Officer of the Board of Education and the reports of the local School Medical Officer.

5. It is important that the course in Hygiene should be in close relationship with the instruction in the other parts of the Training College curriculum, and in particular with the courses in Physical Training, in the Principles and Practice of Teaching, and in Elementary Science. It may well be that the whole of the syllabus will not be taken by any one lecturer, the practice varying according to the circumstances of each College, and in any case the appropriate subdivision of the subject will be determined by the authorities of each College. It is desirable wherever practicable to secure the aid of a medical man or woman specially conversant with the problems of child hygiene, and preferably one attached to the School Medical Service, for the purpose both of lecturing (on the whole or part of the syllabus) and of giving practical instruction.

6. The Board in no way underestimate the value of instruction in physiology and the structure of the body, but they consider that the extent to which it is given should be left to the discretion of the College Authorities. The value of the instruction must necessarily depend largely upon the character and degree of the groundwork of science possessed by the student and upon his or her aptitude. Some students may evince a particular interest in the subject, when the lecturer may prove of assistance in directing their private study. For the majority of students, however, under present circumstances, preliminary instruction of a very simple character is likely to provide the best introduction to the essentials of school hygiene. In recent years too much time and attention have perhaps been devoted to formal lecturing on physiology and even anatomy, and too little to the principles and practice of hygiene and its relation to the school and social life of the child. Similarly, instruction in sex hygiene is left to the discretion of each individual College. The Board, however, suggest that it should be included, but the manner of dealing with it must necessarily depend upon the qualifications of any lecturer available. The presence on the staff of a medical man or woman dealing with the whole or part of the syllabus would no doubt materially influence the course adopted in regard to this subject. The Board are satisfied that detailed teaching of sex hygiene is inappropriate in the Public Elementary School; still less appropriate is any direct reference to the cause and prevention of venereal disease. On the other hand, much may be done in the Training College to give to the students wise advice and direction on both subjects.

7. It is recognised that the degree of emphasis to be laid on certain points in the syllabus (notably in Section VI) may to some extent vary according to the sex of the students and other circumstances. This consideration will be allowed for in setting the examination papers.

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Section I.

Conditions of Health in Childhood.

The child a growing and immature human being. Factors influencing its development from birth : (*a*) heredity, (*b*) environment, (*c*) nutrition, (*d*) training and upbringing (particularly of brain and nervous system during plastic period of growth).

The common characteristics of children in health, including resistance to disease. Relation of seeds of disease (bacteria) and the soil (body tissues).

Daily requirements of health in body and mind—(*a*) nutrition, (*b*) fresh air, (*c*) exercise and manual and intellectual occupation, (*d*) warmth, (*e*) rest, (*f*) cleanliness. The interdependence of physical and mental development. Factors in such development (motor and sensory activity, imitation, attentiveness, habit, self-control).

(a) *Food.*—The meaning and determining conditions of good nutrition. Causes, signs and significance of malnutrition. Means of amelioration or prevention. What food consists of, its amount and kinds, and relative values. Dangers of too much or too little food and of tainted food. The common beverages and their value and effects (water, tea, coffee, cocoa, milk, alcohol*). The Education (Provision of Meals) Acts. Methods of administration (selection of children, preparation and service of meals, educational value).

(b) *Fresh Air.*—The composition of air. Differences between fresh and impure air. The effects on the body of impure air. The principles and methods of ventilation. The advantages of an open-air life and its application to school conditions.

(c) *Exercise.*—The necessity of exercise to health and nutrition. The relation of the muscular system to physical training and the development of the whole body, including the brain and nervous system. Forms of exercise (organised physical exercises, dances, games, swimming, etc.†). Importance of attitudes and postures. Effect on body and mind; signs of muscular fatigue. The place of manual occupations.

(d) *Warmth.*—The nature of body heat. Importance of warmth in cases of young and delicate children. Relation to fresh air and exercise. Clothing, character, adequacy, materials.

(e) *Rest and Sleep.*—The relation of rest and work. Varying needs according to age and health of child. Amount of sleep required at different ages. Influence of the home. Methods and provision for obtaining rest in school.

(f) *Cleanliness.*—Relation of cleanliness to health; ill-effects associated with uncleanliness of skin, mouth, alimentary canal. Pediculosis of head and body. Methods for securing and maintaining cleanliness; statutory powers.

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* For instruction relating to Alcohol the Board's Syllabus of *Lessons on Temperance* should be followed, and "Alcohol: its Action on the Human Organism" (H.M. Stationery Office, 1*s.*).

† For the teaching of Physical Exercises the Board's Official Syllabus should be followed.

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Section II.

The Senses and their Training.

Sense Organs.—The educational value of a training of the senses in childhood.

Sight.—The eye during childhood. Conditions necessary for maintenance of normal vision. Defects of vision (short sight, long sight, squint, etc.) and common eye diseases. Their relation to school surroundings and conditions (insufficient or unsuitable lighting, small or imperfect type, close work). Influence of fatigue, poor nutrition, ill-health, bad postures and home conditions. Effects of eye-strain. Methods of vision testing. Part taken by teacher in detection and amelioration of defects of vision.

Hearing.—The causes and signs of defective hearing. Methods of testing the hearing. How the teacher can train and protect the sense of hearing.

Smell and Taste.

Touch.—Feeling, muscular sense, temperature, and co-ordination.

Section III.

Training the Child in the Practice of Hygiene.

Direct and indirect means of cultivating good physical habits from infancy upwards.

Adaptation of education to the physical needs of the child (example of health of teacher, games, physical exercises, ventilation, cleanliness, avoidance of near eye-work).

Relation of hygiene teaching to the curriculum generally, and in particular to the teaching of domestic subjects.

Training in the principles of sanitation and the proper use of the sanitary appliances.

Duty of individual in relation to the health of the community.

Section IV.

Common Ailments of School Children.

Chief characteristics of ailing children. Home and School. Conditions disposing to disease.

Early signs and symptoms of ill-health in children.

The commoner ailments; their significance in the education of the child; their amelioration and prevention, with special reference to the part played by the teacher. Importance of early detection of beginnings of disease.

(*a*) Fatigue. Headache. Vomiting.

(*b*) Common affections of the skin; *e.g.*, sores, impetigo, ringworm, scabies.

(*c*) Adenoids and enlarged tonsils, sore throat, discharging ears, enlarged glands.

(*d*) Dental disease.

(*e*) Defective speech; stammering.

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(*f*) Defective vision and hearing. Common diseases of the eye.

(*g*) Malnutrition. Rickets.

(*h*) Rheumatism. Heart Disease. Anæmia. Chilblains. Colds. Bronchitis. Tuberculosis.

(*i*) Deformities: *e.g.*, spinal curvature, flat-foot, partial paralysis, rickets.

(*j*) Common infectious diseases.

SECTION V.

SPECIAL GROUPS OF SCHOOL CHILDREN.

Statutory powers and duties relating to abnormal children.

Physically defective (cripples, tuberculous, delicate children).

Blind and deaf (including "partially blind" and "partially deaf").

Dull and backward. Mentally defective. Epileptic.

Particular requirements of each group. Special characteristics of the respective schools and of the methods of education.

The Open-air School.

SECTION VI.

WELFARE OF INFANTS AND YOUNG CHILDREN.

Principal causes of infant mortality.

Conditions necessary for healthy up-bringing of infants and young children (food, fresh air, warmth, cleanliness, sleep).

Milk; importance of good supply of pure milk; contamination and its dangers.

Work of Health Visitor; Infant Welfare Centres; Day Nurseries.

Nursery Schools; organisation and management; special problems of the health and physical needs of young children between 2-5 years.

Education of the parent; training of elder girls in the care of infants and young children.

SECTION VII.

THE WORK OF THE SCHOOL MEDICAL SERVICE.

Statutory powers and duties.

The objects and methods of the medical inspection of schools and school children.

The "following up" of defective children. Ameliorative methods and agencies. School clinics.

The part which may be taken by the teacher, including first aid in minor injuries and methods of dealing with common ailments.

School closure and exclusion of children on medical grounds.

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SECTION VIII.

THE SCHOOL BUILDING AND ITS SURROUNDINGS.

Conditions of a healthy school. Various types of school buildings. Playgrounds and playing fields.

Ventilation. Means and maintenance of ventilation.

The open-air school method (examples).

Warming. Lighting (day and artificial).

Water supply. Collection, storage, purification and distribution.

Planning and Equipment. Classrooms (desks, blackboards, etc.), assembly hall, cloakrooms, lavatories and baths. Dining room, medical inspection room.

Sanitary conveniences (common types), drainage, refuse removal. Earth closets and their management.

PHYSICAL TRAINING.

In the course of Physical Training attention should be given to the following subjects:—

(i) *The Practical Performance* of the Physical Exercises, games, etc., of the Board's Syllabus of Physical Training for Schools, 1919, and its accompanying pamphlets entitled "Suggestions in regard to Games," and "Physical Exercises for Children under Seven Years of Age," and, as required, in the Organised Games and Athletic Exercises suitable for children of school age.

(ii) *The Principles and Practical Methods* of teaching and conducting physical exercises, games (including organised games and athletic exercises), etc., including teaching a class of children.

(iii) *The Theory of Physical Training*, including its general principles, aims, and effects. The instruction in regard to the more systematic part of physical training, with which the Board's Syllabus of Physical Training deals, should follow closely the lines laid down in that Syllabus. The relation of Physical Training to Hygiene, and the practical application of theoretical principles to school life, should be dealt with in some detail.

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GENERAL SUBJECTS.

GROUP A.

ENGLISH.

This syllabus aims at meeting, so far as is practicable, the requirements of those College Authorities who desire to frame their own syllabuses, but who prefer that the actual examination should be conducted by the Board. To this end an alternative Ordinary Course Scheme B in Literature, and a corresponding Advanced Course Scheme A have been introduced.

Effect is also given to certain recommendations of the Departmental Committee on the Teaching of English. It is provided that students' proficiency in Reading and Recitation should be taken into account, a definite "Language" paper is substituted for the paper on books for detailed study, and all possible recognition is given to the variety of tastes and interests among the students.

GENERAL.

1. *Speech Training.*

Students' position in the examination in English will be affected by their degree of proficiency in Reading and Recitation. A student who is unable to speak and read reasonably well will not, as a rule, be considered eligible for Distinction in English.

2. *Essay.*

Every student will be expected to write an Essay.

Ordinary Course.

1. *English Language.*

The paper will be designed as a test of the students' understanding and use of English. With the exception of a play of Shakespeare no books will be definitely prescribed, but students should study in detail a short selection of verse and portions of some of the best English prose works. A passage of prose will be set for paraphrase or précis, and explanations of passages from the prescribed play of Shakespeare will be required. In other questions students may be asked to exercise their powers of perception, reflection and judgment upon pieces of English prose and verse, and to discuss their structure and diction; or to demonstrate in other ways their mastery of the English language, as a means both of communication and of artistic expression.

Questions will not be set directly on Grammar, nor on the History of the language.

For detailed study.

Shakespeare : Julius Caesar.

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2. *English Literature.*

Scheme A.

For general reading.

(*a*)—(i) Doctor Faustus (Marlowe).
  (ii) Strafford (Browning).
  (iii) The Rivals (Sheridan).

(*b*)—(i) An anthology of English verse, including contemporary verse.
  (ii) Wordsworth : (Selections).
  (iii) Shelley : (Selections).

(*c*)—(i) Literary Studies, Vol. I, Bagehot, pages 1–196.
  (ii) Raleigh : Shakespeare.
  (iii) Makower and Blackwell : English Essays, pages 112 to 322.
  (iv) Modern Prose. (Dent's King's Treasuries of Literature.)
  (v) Birds in a Village. (W. H. Hudson.)

(*d*)—(i) Scott : Old Mortality.
  (ii) Dickens : David Copperfield.
  (iii) George Eliot : The Mill on the Floss.
  (iv) Jane Austin : Persuasion.
  (v) Reade : The Cloister and the Hearth.
  (vi) Conrad : Lord Jim.
  (vii) Hardy : The Return of the Native.

Students are advised to read not less than half the books in the above list. They will be expected to answer five questions, of which not more than two may be on the books prescribed in (*d*). The paper will include a question on the subject-matter of the Shakespeare play prescribed for Paper I (Julius Caesar). This question will not be compulsory, but it may be included among the five questions required to be answered.

Scheme B.

For this scheme no particular books will be prescribed. Colleges should draw up their own schemes and submit them to the Board. Modern works as well as the earlier classics may be included, and it will be assumed that students have covered a course of reading at least equivalent in amount and variety to that required under Scheme A.

A general literature paper will be set on this scheme. Questions will be set on the drama, poetry, fiction, and other types of English prose writings, and will endeavour to test the students' knowledge and appreciation of the original authors they have studied. About five questions should be answered, and a wide range of choice will be given.

In this paper a broad interpretation will be given to the term "Literature." It is recognised that many students' choice of books is influenced more by subject-matter than by literary quality, and this fact may be taken into account in the preparation of the schemes.

Advanced Course.

English Language.

The paper will be designed on lines similar to those of the Ordinary Course paper, but will be of rather more advanced type. No books are prescribed, but comments on passages from Burke and Shakespeare will, as a rule, be required. Students should also have studied some such book on the English language as "The Growth of English" (Wyld), "The Making of English" (Bradley), "The Romance of Words" (Weekley).

English Literature.

Students will be required to take one of the following :—

(*a*) General paper on the lines of Scheme B of the Ordinary Course, but of more advanced type. In this paper the questions will be restricted to what is generally understood as English Literature. Colleges must submit schemes to the Board.

(*b*) The rise and development of the English Drama, and the works of Shakespeare; with special reference to the following plays :—

Either The Coventry Nativity Play (Everyman Edition)
or Ralph Roister Doister.
The Morality of Everyman.
Greene : Friar Bacon and Friar Bungay.
Marlowe : Doctor Faustus.
Shakespeare : Macbeth.
Much Ado About Nothing.
Twelfth Night.
King Lear.
The Tempest.

(*c*) The chief authors of the period 1798 (Lyrical Ballads) to 1832 (Death of Scott).

(*d*) The Mid-Victorian period, with special reference to Matthew Arnold, Charlotte Brontë, Browning, Carlyle, Dickens, George Eliot, Ruskin, Tennyson, Thackeray.

HISTORY.

It is assumed that students will have become acquainted during their school career with the outline of British History.

Four alternative Schemes are provided for the Ordinary Course, and six for the Advanced Course. As a rule the Advanced Courses correspond with the Ordinary Courses designated by the same number, in such a way that students taking the two Courses may, if it is found desirable, work together up to a certain point.

Whatever the Scheme chosen, students should read from relevant books of outstanding historical and literary merit; and where the books cannot be read as a whole, chapters and passages should be selected with some definite point in view. Due credit will be given to students who in their examination work show evidence of such reading.

Students should be encouraged, wherever possible, to illustrate their History studies by reference to local conditions.

Ordinary Course.

In the paper set for the Ordinary Course the questions will be of a simple character; their main purpose will be to test the students' power of selecting important historical facts and presenting them in a descriptive and narrative form.

Advanced Course.

For the Advanced Course, students will take the paper set for the corresponding Ordinary Course and also a second paper which will contain more difficult questions.

Advanced students *specially approved by the College* may also present pieces of special work on some subject within their Scheme, of which their more general reading has revealed the interest; these optional exercises, with the College reports thereon, may be submitted to the Board for assessment with the examination scripts, and they will be taken into consideration in the final award. It is to be understood that students who do not present such optional exercises will be given full credit as hitherto for their examination work.

Ordinary Course.

Scheme 1.

General History.

The object of this Scheme is to provide general historical information which will give some idea of the story of civilisation as a basis for an understanding of the modern world. The syllabus attempts to point out the most prominent landmarks, together with the links between them. These landmarks, rather than the details of politics and constitutions, campaigns and battles, should receive special attention. Maps and Time Charts will be essential to illustrate the perspective and spaciousness of General History. The course will also give the students opportunities to fit into a suitable framework such knowledge of Literature, History and Geography as may have been acquired during the school career.

The syllabus is intended to be suggestive and experimental, and Colleges may find it desirable (while observing the general aim of the Scheme) to vary the treatment in accordance with the students' interests and capacities.

Scheme 1.

Introductory—*Primitive Man.* His dwellings, tools and early efforts.

I. *The Early Empires.* The succession of the Empires, and their permanent contributions to civilisation (writing and the alphabet; measurement of time and space). The historical position of the Hebrews (the Bible).

II. *Greece.*—The migrations of the Hellenes and their contact with older civilisations; the age of Homer. The Mediterranean World—the expansion of Greece. Athens and Sparta—the City-State. The struggle for independence—the

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Persian Wars. The permanent contributions of Greece—politics (Pericles), literature, art, philosophy (Socrates), science. The divisions of Greece, the Macedonian conquest. *Alexander*—his conquest of the East, illustrated from Egypt and Judea.

III. *Rome.* (*a*) *The Republic*—the Roman State (magistrates, senate, assemblies); the struggle for equal citizenship and the union of Italy. External conquests (i) the Mediterranean (Hannibal); (ii) the East—Rome as the successor of Alexander (the Greek teacher); (iii) the West—Spain, Gaul, Britain. The decline and overthrow of the Republic—the new army, the provinces, increase of slavery; a century of revolution leading to the establishment of the Empire—Julius Cæsar. (*b*) *The Empire*—its organisation under Augustus, etc., synchronising with the beginnings of the Christian Church. Two centuries of peace—Pax Romana (the roads, the cities, the law, the language). Constantine the Great—the great Councils.

IV. *The Decline of the Roman Empire and the Growth of the Christian Church.* Centuries of Barbarian penetration; the great Hun raids—the "Dark Ages." (i) *The Persistence of the Eastern Empire*—Constantinople (Justinian); the Eastern Church. The Arab (Mahomet) conquests, civilisation (Bagdad, Cordova), and influence (science, etc.). (ii) *The Fall of the Western Empire*—the settlements and the conversion of the Barbarians; Rome and the Papacy (Gregory the Great, St. Benedict).

V. *The Middle Ages; the New Nations.* The Franks, Charlemagne and the Holy Roman Empire. The division of the Frankish Empire—origins of France and Germany. The Normans (England and Sicily). Characteristics of the new order—the Church (the organ of unity; the Latin language), Hildebrand, St. Francis, St. Dominic; the Feudal System; new institutions—the representative system (Parliament), Schools and Universities (Roger Bacon), Architecture. The Turks—the struggle of East and West, the Crusades—the great mediæval enterprise, the Fall of Constantinople.

VI. *The Renaissance and the New World. Mechanical Inventions*: Gunpowder, Paper, Printing. *The Renaissance*—Italy and the discovery of ancient culture (the Greek teacher). Developments in Art (Michael Angelo, da Vinci) and in Literature (Dante, Shakespeare). *The Rise of Modern Science* (Copernicus, Galileo, Newton). *Discovery and Colonisation*—Africa and Asia—da Gama, the British East India Company. America—Columbus, Cortez, Pilgrim Fathers. *The Reformation*—Erasmus, Luther, Calvin, Loyola (the Counter-Reformation). The Dutch Republic; the Puritan Revolution; the Treaty of Westphalia; the growth of Toleration.

VII. *The New System of Sovereign States*—Spain and the Hapsburg dominion—Charles V, Philip II, England and the Parliamentary system—William III. The French Ascendancy (Richelieu and Louis XIV)—the struggle with the Hapsburgs (Austria and Spain). The Rise of Russia and the Decline of the Ottoman Empire (Siege of Vienna). The Rise of Prussia (Frederick the Great). The struggle between Britain and France in India and America—British sea-power.

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VIII. *Revolutions.* (i) *The American Revolution* and its influence on Europe. (ii) *The French Revolution*—causes and characteristics; Voltaire and Rousseau; the Assemblies and the Constitutions: the 4th of August, 1789; the Republic. (iii) *Napoleon*—his Empire and readjustment of Europe; Trafalgar, Austerlitz, etc.; the nationalist revival; his work for and against the Revolution; Waterloo; the Congress of Vienna. (iv) *The Industrial Revolution* and its world-wide results—Britain the leader; Machinery as the application of Science; Factories; the Capitalist; the Agricultural Revolution—the Food Problem.

IX. *The Modern Age.* (i) *The Growth of Democracy*—the Liberal Movement and the new Constitutions (1830, 1848, etc.). *Nationalism*—Belgium and Greece; Italy (Mazzini, Cavour, Garibaldi). Germany—Bismarck, the Franco-Prussian War and Napoleon III. The Dissolution of the Turkish Empire and the new Balkan States. *Social Movements*—Socialism (Louis Blanc, Karl Marx). The Labour Movement. (ii) *Expansion of Europe over the World*: America—Expansion of; the Civil War (Lincoln). Asia—the Expansion of Russia; Awakening of the East (Japan, China). Africa—Partition of. *The British Commonwealth of Nations*—extension of responsible Government. The Rivalry of World-Powers. *The Great World-War* and its sequel—the new States. (iii) *International Movements*—the continued growth of Science (Darwin and Evolution, Pasteur and Preventive Medicine), and of Invention (steam and electricity), the interdependence of nations—communications (sea, land, air); trade and finance, health; the League of Nations.

Scheme 2.

British History. Below are enumerated the main themes which will form the subject of the examination; not less than *four* of these themes should be studied. A sufficient number of questions will be set to give ample choice.

(1) *The Land*—the manorial and feudal systems; their decline and the change to the modern system. (2) *The Towns*—their growth, government and characteristic institutions. (3) *The Church*—the Mediæval Church, the Reformation, the Puritan Revolution, the Wesleyan and the Nonconformist movements. (4) *Education*—Schools and Universities; the Renaissance period; the modern development of education. (5) *Industries and Inventions*—early tools, clothing and furniture; home industries—the wool trade, the cloth trade and export; the growing use of iron, mechanical inventions and the industrial revolution; changes in transport, communication, population. (6) *External Relations*—main tendencies; the influence of trade; the navy and shipping. *Growth of Overseas Trade and the Empire*, in broad

outline. (7) *Money, Banking and the Credit system*—the beginning of money rents and money wages; the trading companies; the Bank of England; national credit; modern developments. (8) *The Development of Parliament and of Local Government*, in broad outline.

Scheme 3.

The History of Mediæval England and Wales, from the Norman Conquest to 1485, together with the more relevant European History, viz.: the position and power of the Church; the European position of the Norman and Angevin kings; the great period of Monastic Revival and of Ecclesiastical Architecture; the Crusades; the growth of the French Monarchy (in connection with the Hundred Years' War); the general spirit and characteristic institutions of the Middle Ages.

Students will be expected to read the Prologue to the Canterbury Tales, and Froissart's account of the campaigns of Crecy and Poictiers and the reign of Richard II; and to show knowledge of some of the contemporary literature, *e.g.*, of Piers Plowman, Joinville's Chronicles of Louis IX, and the Paston Letters.

Some special questions will be set dealing with Welsh History.

Scheme 4.

The main landmarks in the History of Europe and in the expansion of the European peoples overseas from 1815 to the present date. The course should include some study of the history of Britain, together with the main landmarks in the history of the British Commonwealth of Nations and of the United States of America. Details of the Great War will not be required. Although a fixed date is given for the beginning of this period, students should know in outline how the initial position was reached.

Advanced Course.

Scheme 1.

General History. A fuller knowledge will be required than in the case of the corresponding Ordinary Course.

Scheme 2.

The course of study should deal with one of the two following alternatives:—

(a) *The Social and Industrial History of Britain, from the Norman Conquest*. Students will not be required to give equal attention to the mediæval and modern aspects of this subject. The students will take the paper set for the Ordinary Course, together with two other papers (of 1½ hours each). One of the latter will contain questions designed to test the students' power to use the source book named below, a copy of which they may take into the examination room. "English Economic History—Select Documents." (Brown, Bland & Tawney.)

(b) *The British Commonwealth of Nations*. Students will take two papers, one of which will be the paper set for the Ordinary Course. They should acquire a knowledge of the main sequences of events by which the British Empire has developed; and they should understand how the Overseas Dominions, etc., are governed and their relations with the Imperial Government. Such knowledge can be acquired from the books named below, and the second examination paper will contain a sufficient number of questions which can be satisfactorily answered from an intelligent knowledge of these books. The students' reading need not, however, be limited to these, and an opportunity will be given in the examination for the display of a wider knowledge.

Egerton : Origin and Growth of Greater Britain.
Ramsay Muir : A Short History of the British Commonwealth.
Williamson : A Short History of British Expansion.
Seeley : The Expansion of England (except the last chapter).
Ramsay Muir : The Making of British India (documents and text).
Froude : English Seamen.
Burke : Speeches (i) American Taxation, (ii) Conciliation with America.
Macaulay : Essays—Clive; Warren Hastings.
Adam Smith : Wealth of Nations, Book IV, Chapter 7 (Of Colonies).

Scheme 3.

The course of study should deal with one of the two following alternatives:—

(a) *The History of Mediæval England and Wales, together with the more relevant European History.* A fuller knowledge will be required than in the case of the corresponding Ordinary Course.

(b) *The History of Wales* from 1066 to 1485.

Scheme 4.

The main landmarks in the History of Europe and in the expansion of the European peoples overseas from 1815 to the present date. A fuller knowledge will be required than in the case of the corresponding Ordinary Course.

GEOGRAPHY.

The Board will be prepared to consider arrangements by which students who are regarded by the Authorities of Training Colleges as qualified to take an Advanced Course, may be examined in the Ordinary Course at the end of their first year of residence, and may, if their work at this examination is not classified by the Board as "weak," proceed to take during their second year a special course, arranged by the Training College and approved by the Board. This course and the Ordinary Course taken together will be reckoned as an Advanced Course.

The work done during the second year should be tested by the College and the reports thereon and the marks awarded, together with the worked scripts, should be submitted to the Board for assessment. The Board may also, if they think fit, direct one of their officers to visit the Training College for the purpose of conducting a further test vivâ-voce or otherwise.

Ordinary Course.

This course is intended to afford scope for a thorough training in Geographical principles involving the connexion between physical and human Geography. Its essential aim is an intelligent understanding of the geographical factors which determine or influence life upon the earth, more particularly with respect to man and his activities. It comprises :—

A.—(1) The study of the geographical effects arising from the shape, size, and movements of the earth as a member of the solar system; the use of the globe and the fixing of position by lines of latitude and longitude; the distribution of land and water over the earth's surface, and the representation thereof by the common forms of map projection (Mercator, homolographic, orthographic, equidistant, conical); the various types of land relief and their representation by orographical maps; the common materials forming the earth's crust and their arrangement; the general distribution and cause of winds, temperature, and rainfall; the geographical distribution of common plants and animals; the distribution of the chief races of man; the influence of nature upon man and of man on nature; the geographical importance of the oceans and great seas; the main oceanic currents and drifts; the phenomenon of the tides.

(2) A broad but systematic survey of the earth's surface so as to bring under review the great natural regions as distinguished by conformation, by climate, and by vegetation; due regard being paid to their relative importance as the homes of primitive peoples and of the great nations of the world and to the part they play in the world's industry and commerce. Each should be so treated as to lead to a clear understanding of the physical causes producing it and of the geographical conditions arising therefrom, but only such topographical details should be included as are requisite to correct ideas of the position and importance of the principal states of the world and their chief cities.

B. A closer study of the British Isles under the following heads :—

(1) Physical conditions :—

General knowledge of rock structure; influence of rock structure upon topography; distribution of land forms—mountains, plateaux, escarpments, valleys and plains; river system in relation to topography; distribution of soils, their origin and characteristics; the distribution of mineral wealth; the distribution of temperature and rainfall.

The Ordnance Survey maps, their scales, characteristics, etc.; rainfall and temperature maps.

(2) Economic Geography :—

The distribution of agriculture, especially cereal, fruit, and pasture areas; important industries and their geographic controls, especially the mining, textile, iron, and ship-building industries; the industries concerned with food supplies; means of communication and transport; distribution of population, including the aggregation in towns and its geographical significance.

Importance is attached to direct observational work—the making of plans, weather charts, etc. —and to the study of local environment as an aid to the understanding of geographical problems.

Advanced Course.

Students taking this course are assumed to possess a sound knowledge of geographical principles and be in a position to apply them to special areas. One of the following areas should be selected :—(*a*) Europe, including the British Isles; (*b*) the Monsoon Lands of Asia; (*c*) North America; (*d*) two of the three Southern continents.

In connexion with the area chosen, an intensive and detailed knowledge will be expected of the physical features (including some knowledge of geological structure), of the climatic phenomena and their causes, of the geographical factors and their changing values which determine development in both human and commercial aspects.

As in the corresponding Ordinary Course, importance is attached to direct observational work. If possible a geographical problem connected with a particular piece of country should be investigated first hand, and some acquaintance should be acquired of the means by which surveys are made and by which geographical position is ascertained.

MATHEMATICS.

When questions involving graphical methods are included in the papers, squared paper will be provided. Students will, when necessary, be supplied with four-figure trigonometrical and logarithmic tables.* The use of other tables in the Examination is forbidden.

Every student should be provided with a ruler graduated in inches, eighths and tenths of an inch, and in centimetres and millimetres, set squares, a protractor, compasses, and a hard pencil.

Ordinary Course.

Two papers will be set. Two hours will be allowed for Paper I and three for Paper II.

A.—ARITHMETIC, MENSURATION AND ALGEBRA.

Arithmetic, excluding Troy Weight, Apothecaries' Weight, True Discount, the Rule of Cube Root, Foreign Exchange, and Scales of Notation. Students must be acquainted with the principles of the Metric system. Algebraical symbols and processes will be generally permitted.

Mensuration of triangles, parallelograms, trapeziums, regular polygons, circles, prisms, pyramids, cones and spheres; with easy applications. Questions may be set involving the measurement of drawings or the drawing of objects to scale.

Algebra as far as, and including, simple equations of one unknown, quadratic equations of one unknown, simple simultaneous equations of two unknowns, easy simultaneous equations involving the squares of the unknowns, and problems leading up to these equations. Graphs, arithmetical progressions, geometrical progressions, square root, highest common factors and lowest common multiples, ratio, proportion and variation. The use of four-figure logarithmic tables.

B.—GEOMETRY.

Questions may be set in which the use of the set square or of the protractor is forbidden.

Any proof of a proposition will be accepted which appears to the Examiners to form part of a logical order of treatment of the subject. In the proof of theorems and deductions from them the use of hypothetical constructions is permitted.

†The elementary Geometry of lines, angles, triangles, parallelograms, circles, and similar rectilinear figures, with easy deductions and arithmetical illustrations.

Questions involving practical drawing and measurement may be set on the same range of work.

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* The tables supplied will be those published by the Cambridge University Press.

† Substance of Euclid, Bks. I, II, III, IV, and Bk. VI, Props. 1–20, 33, 39 and A. and B.

ELEMENTARY TRIGONOMETRY :—

Trigonometrical ratios; the solution of triangles (the addition formula will not be required); the use of four-figure trigonometrical tables. Easy problems on heights and distances.

ELEMENTARY SOLID GEOMETRY :—

Students will be expected to be acquainted with the forms and simple properties of the cube, the rectangular block, the tetrahedron, the sphere, the cylinder, the wedge, the pyramid, and the cone. Plans and elevations of these solids, when one face is horizontal, and of common objects of geometrical form. Angle between a line and a plane, angle between two planes.

Advanced Course.

The work for the Advanced Course in Mathematics will include the whole of the work for the Ordinary Course together with some or all of the subject-matter covered by *either* Syllabus A. (Pure Mathematics) *or* Syllabus B. (Applied Mathematics).

Three papers will be set, each of three hours. Paper 1 will include harder questions on the syllabus of the Ordinary Course together with questions on ground common to Syllabuses A. and B., and will be taken by all Advanced Course students. Paper 2A and Paper 2B will be alternative and each will be of sufficient length to permit of a choice of questions.

SYLLABUS A. (PURE).

(N.B.—Students need not take more than three of the five following groups.)

ALGEBRA.

As far as and including the Binomial Theorem for a positive Integral Index, Logarithms and their use, Permutations, Combinations.

GEOMETRY.

Principles of Geometry applied to lines, circles, and the simpler solid bodies. Ceva's and Menelaus' Theorems. Harmonic Section. Centres of Similitude. Pole and Polar. Inversion. Co-axial Circles.

CO-ORDINATE GEOMETRY.

Simple analytical treatment of Lines, Circles, Ellipses, Parabolas and Hyperbolas, excluding the general equation of the second degree.

TRIGONOMETRY.

Measurement of angles. Trigonometrical ratios and the relations between them. Expansion of trigonometrical ratios of compound angles. Relations between products and sums or difference of ratios. Relation between sides and angles of a triangle. Expression of lines and angles related to the triangle in terms of the sides and angles. Application of Logarithms to Trigonometry.

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ELEMENTARY PRINCIPLES OF CALCULUS.

Differentiation of simple algebraical functions of x and of the direct trigonometric functions of x, with application to maxima and minima, tangents and normals to curves (including the circle) and approximation. Integration of a function of x in the cases mentioned above with easy applications to Mensuration and Geometry. Questions may be set requiring graphical solution, the graphs being based on numerical details actually given.

SYLLABUS B. (APPLIED).

(N.B.—Students are required to take Mechanics, but need not study more than one of the other two Groups.)

PLANE AND SOLID GEOMETRY.

Elementary principles of Co-ordinate Geometry of line and circle, and simple algebraic curves.

Projections of lines, triangles and parallelograms on the Co-ordinate planes.

Plans and elevations of the simple geometrical solids in any position.

Practical applications of Geometry and mensuration.

MECHANICS.

Principle of the composition and resolution of forces, with simple applications. Moments and couples. Equilibrium. Centre of mass in simple cases. Simple machines. Friction. Velocity and acceleration. Graphic methods applied to mechanics. Motion under gravity. Pendulums, projectiles, laws of motion. Work and Energy. Motion in a circle. Impulsive forces. Impacts. Harmonic motion. Fluid pressure. Density. Boyle's law.

ELEMENTARY PRINCIPLES OF CALCULUS.

As in Syllabus A., together with applications to Centres of Mass, Velocity and Acceleration, Motion under gravity, impulsive forces, harmonic motion.

ELEMENTARY SCIENCE.

1. No Scheme is prescribed by the Board. After consideration of the needs of the student and of the facilities which the College offers for Science teaching, the Authorities of the College should draw up a Scheme and submit it for the approval of the Board. Students taking Elementary Science as one of their General Subjects will be required to give an adequate amount of time to the subject, and no Scheme will be approved which does not appear to the Board to make proper provision for this.

2. The examination of the students in Elementary Science will be conducted by the Training College Authorities in consultation with the Board's Inspectors. The Board will require the College Authorities to submit :—

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(*a*) Sufficient evidence in the shape of written examination work to enable them to estimate the general ability and application of the student.

(*b*) A report which should indicate the capacity of the student to undertake practical work in the classroom and in the laboratory or field.

ELEMENTARY SCIENCE (for Ex-Students only).

A paper will be set on the following Schemes for students who present themselves for a further examination after the completion of their course of training, and who select Elementary Science as one of their General Subjects. This paper will be in two parts, relating to Schemes I and II respectively. Ex-students will have the opportunity of taking either Part 1 or Part 2 of the paper or of answering half the required number of questions from one part and half from the other.

SCHEME I.

ELEMENTARY PHYSICS AND CHEMISTRY.

N.B.—Students will not be expected to cover the whole of the Syllabus.

Measurements of lengths, areas, volumes, and weights in the British and metric systems. These measurements should be studied in their practical use in connexion with definite experiments such as are suggested by the rest of the syllabus. Simple pendulum; lever, spring balance. Density of solids and liquids; fluid pressure; flotation; principle of Archimedes; hydrometer; specific gravity; U tube, barometer; Boyle's law; dynamometer; spring balance, measurement of force, levers, parallel forces, centre of gravity, parallelogram and triangle of forces; inclined plane; simple pendulum.

Measurement of expansion by heat of solids, liquids and gases. Thermometers. Specific heat. Experiments on melting and boiling points, on evaporation and condensation; latent heat; vapour pressure, wet and dry bulb thermometer, dew point; heating and cooling of air by rapid compression or expansion, formation of rain. Simple experiments on conduction, convection, and radiation.

Study of the effect of heat and acids on common substances such as chalk, washing soda, bicarbonate of soda, iron, copper, lead. The study of combustion, including the rusting of iron and the burning of phosphorus, and of magnesium, carbon, starch, sugar, animal and vegetable matters. Experiments should be performed which lead to a knowledge of the composition of chalk, air, and water, and should show, among other things, that carbon, iron, copper, etc., unite with oxygen to form oxides, and that foodstuffs, such as starch and sugar, contain both carbon and hydrogen.

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Solubility of solids and liquids; *e.g.*, salt, sugar, starch, oils, fats, wax, resin, etc., in hot and cold water, in alcohol, turpentine, benzine, and other solvents. Solubility curves. Identification of substances by their properties, including physical constants.

Hard and soft waters; soap solution; natural waters; impurities in water.

Many of the above changes should be studied quantitatively; *e.g.*, the increase or decrease in weight, the volume of gas evolved from known weights of substances.

The following reactions should be studied and a knowledge of the products should be obtained :—

Action of heat on mercuric oxide and on chlorate of potash.
Action of sulphuric acid on salt and nitre.
Action of hydrochloric acid on red lead and manganese dioxide.
Action of sulphuric acid on copper, zinc, and iron.

Study of the formation of salts. Preparation, properties, and composition of ammonia. Properties of caustic soda and potash. Alkalis and acids contrasted. Experiments in neutralisation. Acids, bases, and salts.

Simple practical study of oil, fat, albumen, starch, and sugar.

Scheme II.

Elementary Botany.

N.B.—Students will not be expected to cover the whole of the Syllabus.

Structure of seeds and germination : pea, bean, maize, wheat, mustard, respiration of germinating seeds.

The life-histories of crocus, hyacinth, sweet pea, potato, primrose, coltsfoot, celandine (R. Ficaria).

Root : structure, function; root hairs, absorption of food, osmosis, water cultures; geotropism, hydrotropism; sensitiveness of root apex.

Stem : structure, function; conduction of food and water; different types of stems.

Leaf : structure; shapes of leaves and causes to which they are due; chlorophyll; extraction of chlorophyll; function; photosynthesis; transpiration; respiration; heliotropism, sleep of leaves. Flower : the various parts of a typical flower and their uses; pollination and fertilisation; cross pollination. Fruits : the dispersal of fruits and seeds.

The storage of food, bulbs, corms, tubers, rhizomes; climbing plants, runners.

Recognition of common trees and shrubs in summer and winter; twigs; buds; structure of buds; unfolding of buds, bark, branching.

Plant formations and associations; adaptation of plants; plants of the hedgerow, meadow, moor, sea shore, bog, woodland, etc.

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The structure and life-history, so far as they can be observed with the naked eye and a pocket lens, of Pinus, Fern, Moss, Lichen, Fungus (Amanita, Lepiota, Mushroom, Coprinus).

Soil : formation of soils; different kinds of soils, properties of soils, effect of lime, retention of water by soils, capillarity, soil temperatures, plant food in soil, use of manures, soil organisms, nitrification.

ADVANCED SCIENCE COURSES.

Students wishing to do more advanced work in Science than is provided for in the Ordinary Course in Elementary Science may take either Physics, Chemistry, Botany, General Biology, or in special cases some other course approved by the Board.

The instruction in these subjects must be of a practical and experimental character, and in general accordance with the following syllabuses, which are not exhaustive. Students may receive credit for independent practical work lying outside a Syllabus, provided that this extra work and the work set out in the Syllabus are co-ordinated so as to form a consistent whole.

The proficiency of students will, as a rule, be tested partly by inspection of their practical work during the course of training, partly by a scrutiny of their note-books, and partly by means of written examination. Any student who takes up one of these courses will be required to submit for inspection a record of the experiments which he has actually performed. This record must be in his own words, and each of the entries which it contains must be made at the time of or immediately after the experiment to which the entry refers. The record must be accompanied by a short separate index of its contents. A practical or oral examination may be held, but in such a case due notice will be given.

The written examination will be held at, or shortly before, the close of the students' period of training. No credit will be given for this examination in any case where the practical work appears to be insufficient or unsatisfactory.

PHYSICS.

Motion of falling bodies. Atwood's machine.
Potential and kinetic energy.
Pendulum experiments.
Units. Mass, Force, Work, etc.
Statical Couples. Principle of moments.
Expansion of solids, liquids and gases : methods of measuring coefficient of expansion (absolute and apparent).
Boyle's Law, Charles' Law.
Accurate methods of measuring specific and latent heats.
Vapour pressure. Boiling point. Variation of boiling point with pressure.
Determination of Vapour density.

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Reflection at spherical surfaces and formation of images. Refraction by prisms, minimum deviation. Total internal reflection, critical angle. Methods of measuring refractive indices. Refraction by thin lenses; real and virtual images. Focal lengths, simple telescope and microscope.

Magnetic field. Law of magnetic force. Direction of the earth's magnetic force, Horizontal and Vertical Components.

Electrification by friction and induction. Frictional Machines.

Simple phenomena of electrified bodies.

Gold Leaf Electroscope. Conductors and Insulators.

Distribution of Electrification on Conductors.

Hollow Conductors.

Electric field. Strength of field. Potential. Condensers.

Simple Voltaic cells. Description of chemical action.

Faraday's laws of electrolysis: current measurement.

Magnetic field and magnetic measurement of current.

Galvanometers. Principle and use of tangent galvanometer, the forces acting on the needle, etc.

Resistance. Electromotive Force. Difference of potential, Ohm's Law. Practical Units. Volt, Ohm, Ampère. Heat developed on a circuit, Joule's Law.

Elementary phenomena of electromagnetic induction.

CHEMISTRY.

Preparation, properties, and composition of hydrogen, chlorine, ammonia, gaseous oxides of nitrogen and carbon.

A detailed study of the preparation and composition of various compounds chosen with a view to the explanation and proof of the laws of gaseous combination, definite and multiple proportion.

The atomic theory. Determination of atomic and molecular weights. Formulæ and equations. Valency.

A comparative study of the halogens and their compounds.

A comparative study of phosphorus, arsenic, antimony, and bismuth, and some of their compounds.

A comparative study of the characteristic properties of some of the well-known metals, and their interaction with water, acids, etc. The formation and characteristic properties of the compounds so formed.

Classification of elements. Periodic scheme.

A study of a few typical carbon compounds with the object of showing the methods used in characterising them, in oxidising, in reducing, and in assigning constitutional formulæ.

BOTANY.

Students will not be expected to cover the whole Syllabus, and may take *Section a* only.

The whole course must be done practically. The Syllabus only includes such topics as can be treated practically either by the examination of specimens or experimentally.

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Section a.

1. The structure and life-history of the following plants: sweet pea, bean, potato, sunflower, hyacinth, wheat or oat, Scots pine. The use of the microscope; reagents and stains for microscopic work.

2. The structure of the flower and the functions of its various parts. Different types of flowers. Angiosperms and Gymnosperms. The formation of the seed: pollination and fertilisation; contrivances to ensure pollination; insects and flowers. The structure of the ovule; the formation and development of the embryo. Germination of seeds; comparison of different types of germination. Dicotyledons and Monocotyledons.

3. Plant physiology. The microscopic structure of the root, stem, and leaf in reference to their functions in the nutrition of plants. Absorption of water; transpiration. Respiration; rise of temperature during respiration; intramolecular respiration. Photosynthesis; study of chlorophyll; spectroscopic examination of chlorophyll; conditions under which chlorophyll is formed; action of light on chlorophyll. Carotin and xanthophyll. Conduction of water and substances in solution; osmosis; plasmolysis; root pressure; nutrition of insectivorous plants. Growth; simple methods of recording growth; tensions of tissues; hygroscopic movements. Geotropism; heliotropism; the klinostat. The sensitiveness of tendrils to contact; the effect of temperature on the opening and closing of flowers; the sleep movements of plants.

4. Adaptation of plants to their surroundings; protection against animals; adaptations to cold and drought; the shapes of leaves and the causes to which they are due; the structure of fruits; the dispersal of fruits and seeds.

5. Elementary classification of common British flowering plants and trees and their determination by means of a Flora. The elementary principles of Ecology; a few typical plant-formations and plant-associations.

Section b.

6. The structure and life-history of the following cryptogamic types: Yeast; Bacteria (the forms found on the teeth and in putrefactive vegetable infusions may be studied; the spirillum which frequently occurs in the form of a white scum on the surface of the liquid containing organic matter found in the neighbourhood of manure heaps is easily obtained); Peronospora (either Peronospora effusa; common on species of Chenopodium or Atriplex, or Peronospora parasitica, common on shepherd's purse, are suitable for study); Mucor, Penicillium; Agaricus (a mushroom and other common types of gill-bearing fungi such as Amanita, Lepiota, Coprinus, may be studied); Pleurococcus; Spirogyra; Pellia; Moss; Fern (Pteris aquilina, the common bracken fern, is a suitable type).

GENERAL BIOLOGY.

(Mainly the study of plants but with some animal illustration.)

This Syllabus is divided into Sections A and B. The examination paper will be set on Section A only.

Section A.

I. *Biological Principles.*

The essential qualities of the living organism, as illustrated by its Nutrition, Growth, Irritability, Movement, and Reproduction. The structure of organisms in sufficient detail only to elucidate the above functions. Studies should be selected from the following groups, with suggested types where given. A choice of questions will be set and students will not be expected to have covered the whole Syllabus.

Groups suggested.

Unicellular Forms. Amoeba, Paramoecium, Euglena, Chlamydomonas.
Algae. Nostoc, Spirogyra or Ulothrix, Vaucheria.
Fungi and Bacteria. (Both parasitic and saprophytic forms.)
Lichens.
Mosses.
Ferns.
Flowering Plants. (Angiosperms and Gymnosperms.)
Invertebrates. Hydra, Earthworm, Daphnia, an insect.
Vertebrates. Frog, a bird.

II. *Variation, Evolution, and Heredity.*

Outline of the history of the development of Evolution ideas.
The elementary facts of Evolution and Genetics.

Section B.

Students will be expected to make a detailed investigation of a special topic to be selected from any branch of Biology, *e.g.* :—

(i) Some aspect of Plant or Animal Life in the Field. (This may take the form of ecological work, or of an enquiry into Adaptations, Habits, or Life-histories, etc.)
(ii) A more intensive study of plant structure, functions, or types.
(iii) A more intensive study of animal structure, types, etc.
(iv) A detailed study of any plant or animal group, *e.g.* :—
    (*a*) Insects.
    (*b*) Birds.
    (*c*) Fungi.
    (*d*) Seaweeds, etc.
(v) Experimental or statistical work on Variation or Heredity.
(vi) Classification of British Plants (by aid of a Flora).

There will be no examination in this section, but the standard of work will be judged by records submitted. Special credit will be given for any piece of independent investigation.

WELSH.

(For Welsh Colleges only.)

The aim of the following courses of study is to lead the students towards an appreciation of the best that has been written in the Welsh Language, and to give them a command of good literary Welsh. The books recommended below should therefore be studied from the literary and stylistic rather than from the historical and philological point of view.

An essay will be set in the examination on both courses.

Ordinary Course.

1. For detailed study.

Y Mabinogion : Y Pedair Cainc (modernised version).

2. For general reading.

Dafydd ap Gwilym : Cywydd Gyrru'r Haf i Forgannwg.
Ceiriog : Oriau'r Bore.
Winnie Parry : Cerrig y Rhyd.
An Anthology of Prose : (Clasuron Rhyddiaith Cymru is recommended, or any Anthology approved by the Board).

3. Translation of unseen passages from Welsh and English Authors.

4. Outlines of Welsh Grammar.

Advanced Course.

1. For detailed study.

The books prescribed for the Ordinary Course, with the addition of the following :—

Bardd Cwsc : Gweledigaeth Cwrs y Byd and Gweledigaeth Angeu.

2. For general reading.

The books prescribed for the Ordinary Course, with the addition of the following :—

Drych y Prif Oesoedd : Part I.
Goronwy Owen : Cywydd y Farn.
Eben Fardd : Dinystr Jerusalem.
Islwyn : Cymru.
D. Owen : Rhys Lewis.
Richard Morgan : Tro trwy'r Wig.
An Anthology of Verse (Caniadau Cymru is recommended).

3. Translation of unseen passages from Welsh and English Authors.

4. An outline course on the structure and idiom of the Welsh Language.

FRENCH.

No set books are prescribed for study. The passages for translation into English will be taken from French authors of established repute, both prose writers and poets. Students will be required to write a free composition in French and to translate pieces of English prose of moderate difficulty into French.

All students will be required to take a supplementary oral examination, at which they may be called upon to read aloud, to write from dictation, and generally to satisfy the examiners that they possess reasonable facility in the use and comprehension of the spoken idiom.

GERMAN.

No set books are prescribed for study. There will be a written and oral examination on lines similar to those described under French above.

LATIN.

No set books are prescribed for study. The passages for translation into English will be taken from both prose writers and poets. Students will also be required to translate pieces of English prose of moderate difficulty into Latin.

GROUP B.

MUSIC.

Ordinary Course.

Two alternative schemes are provided for the Ordinary Course in the Theory of Music and Singing. Scheme A is to be followed except in cases in which proposals for work in accordance with Scheme B have been specially approved. Scheme B is intended for use in Colleges which wish to make special arrangements for students intending to be teachers of younger children. A College desiring to work on the lines of Scheme B should submit its own Syllabus, which should specify the music which it is proposed to use.

It is desirable that all students should be encouraged as much as possible to appreciate good music of various kinds.

SCHEME A.

I. SINGING.

(*a*) Choral singing.
(*b*) Unison singing of National Songs or Folk Songs, and of classical songs.
(*c*) Ear tests.
(*d*) Sight singing from both notations.
(*e*) Capacity to beat time to either instrumental or vocal performance.
(*f*) Memorizing a certain number of specified traditional songs. Two alternative lists of the songs specified for this purpose are given below. With the special consent of the Board, six Welsh songs may be substituted for six of the songs in one of the alternative lists.

List 1.—From " Songs of Britain." (Boosey & Co.)

Sumer is icumen in.
Agincourt song.
O mistress mine.
With my flock as walked I.
The great meat pie.
Sir Eglamore.
The broom of Cowden Knowes.
In yon garden.
I have house and land in Kent.
When the King shall enjoy his own again.
I live not where I love.
Gossip Joan.
The sweet rosy morning.
The jolly waggoner.
Row, Dow, Dow.
The dimpled cheek.
Jenny's mantle.
General Monk's march.
The shepherd's absence.
Chirk Castle.
Here's his health in water.
O waly, waly.
The Laird o' Cockpen.
Wha'll be king but Charlie.
Kitty of Coleraine.
The pretty girl milking her cow.
Dear harp of Erin.
Come o'er the sea.

List 2.—From " A Selection of Collected Folk Songs," (Novello.)

As I walked through the meadows.
I'm seventeen come Sunday.
The crystal spring.
A farmer's son so sweet.
The keys of Canterbury.
The coasts of High Barbary.
The tree in the wood.
Brennan on the moor.
Oh! No, John.
The farmyard.
The red herring.
Dashing away with the smoothing iron.
The keeper.
Wassail song.
Heave away, my Johnny.
Spanish ladies.
The briery bush.
William Taylor.
The female highwayman.
I will give my love an apple.
My boy Billy.
Down by the riverside.
The painful plough.
King Herod and the cock.
The holly and the ivy.
Come, all you worthy gentlemen.

II. THEORY OF MUSIC.

(*a*) The position of the notes on the treble and bass clefs. All the major and minor scales and key signatures. Intervals. Transposition. Transcription into the Sol-fa Notation and *vice versâ*.
(*b*) The value of notes, tied notes, dotted notes, and rests. Signatures of all simple and compound times. Accent and syncopation. Contents of bars. Transcription from one time to another.
(*c*) A knowledge of Sol-fa Notation in so far as it is of assistance in learning the Staff Notation. (Modulator, major and minor modes, names of chromatic tones. Removes of keys. Bridge notes and distinguishing tones. All the measures in common use.)
(*d*) Musical terms in common use.
(*e*) The construction and writing of simple melodies.

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(*f*) The principles of musical analysis and appreciation, based on songs and other simple music studied by the students.

III. School Method.

(*a*) General rules relating to voice training—particularly with reference to the voices of children.

(*b*) The principles governing the choice of school songs.

Students may be examined individually in 1 (*c*), (*d*), and (*e*), and II (*e*), and will be required to work a paper covering any of the sections of the Syllabus.

(*c*) A fair knowledge of songs suitable for school use, old and new, by representative composers.

Scheme B.

I. Singing.

(*a*) Choral and Unison singing.

(*b*) Memorising a certain number of simple Nursery Rhymes, National Songs and Folk Songs, and the pointing of them on a Staff or a Sol-fa Modulator.

(*c*) Easy sight singing from both notations.

II. Theory of Music.

The students should acquire sufficient theoretical knowledge to enable them to analyse and interpret simple music for the young, such as Gavottes, Minuets, Schumann's Album for the young, country dances, etc., and to teach simple songs.

III. School Method.

(*a*) The training of young children's voices.

(*b*) The elements of Staff Notation, based on the Sol-fa method.

(*c*) Simple ear training, and invention of short phrases for imitation.

(*d*) The interpretation of Rhythm and Time by movement; also Free Expression.

(*e*) The teaching of songs, singing games and dances.

N.B.—It is desirable that students should be able to accompany children's songs and dances, and to play simple music of intrinsic merit to which the children may listen.

Students may be examined individually in I (*b*) and (*c*), and III (*c*), (*d*), and (*e*); and will be required to work a paper covering any of the sections of the Syllabus.

Advanced Course.

Two alternative Schemes are provided, A and B. They will include the following, in addition to the work of the Ordinary Course in the Theory of Music and in Singing :—

I. Advanced Sight Singing from Staff Notation.

II. Advanced ear-tests, including simple chord ear-tests, and melody writing.

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III. One of the following courses of practical work :—

(*a*) Singing : including twenty National Songs or Folk Songs (from a standard collection), ten songs by composers of recognised standing, and singing at sight an easy song.

(*b*) Pianoforte : a study by Clementi or Czerny, a movement by Bach, a piece chosen by the student, and playing at sight an easy Pianoforte piece.

(*c*) Organ : an easy fugue by Bach, a piece chosen by the student, and playing at sight an easy Organ piece.

(*d*) Violin : a study chosen by the student, a movement from the Sonatas of Bach, Mozart, or Beethoven, and playing at sight an easy Violin piece.

Any recognised orchestral instrument may, with the approval of the Board, be chosen in place of the instruments mentioned above.

IV. The Outlines of Musical History, and the Form of classical movements. The paper set will include the harmonization of a simple tune and elementary questions in Harmony.

DRAWING.

Ordinary Course.

The Syllabus may be broadly divided under three heads, which to some extent overlap—

I.—Drawing Practice.
II.—Theory and School Method.
III.—Applications to the other work of the students.

I.—Practice.

This falls, roughly, into the following groups :—

A. Representative or Imitative Drawing.
B. Creative and Inventive Drawing.
C. Drawing with Instruments.
D. Lettering.

It is not intended, nor indeed is it usually feasible, that all students should practise all these branches of the subject, though there is no doubt that some skill in all the groups would be advantageous to the majority of teachers. What can be done during the College Course will largely depend on the skill already obtained by the students before entering college and on the amount of time allowed for practice ; but "A" will generally form the essential basis of the drawing practice.

A certain amount of ability in " B " is needed if any sort of original illustration or any original decorative work is to be attempted, while some skill in " D " is evidently desirable in connexion with Handwriting, if for no other purpose.

Although most students will probably acquire some incidental acquaintance with "C," it is really a special branch which requires considerable practice when real skill is desired. It will therefore appeal chiefly to those who have a scientific or mechanical bias, and particularly to those who specialise in Handwork for Boys.

The various groups may now be separately considered :—

A. *Representative or Imitative Drawing*—should lead to—

(*a*) the formation of habits of careful and attentive observation ;

(*b*) definite knowledge of the form, structure, colour, and other characteristics of natural and fashioned objects ;

(*c*) the attainment of skill in the use of the various media usually employed in their representation ; and

(*d*) some training of taste, leading to a discrimination of what is beautiful, ugly, or commonplace.

The practice should include drawing at sight and from memory of—

(i) Fashioned objects of various sizes, forms, colours, and materials, including objects specially selected for their beauty of form, colour, and workmanship, as well as the common objects which, through long use in the service of man, have gradually acquired the character and shape best suited for their purpose ;

(ii) Natural objects, such as plants, birds, shells, feathers, etc., including living and moving things, as well as "still life." (Also *see* under III.—Nature Study.)

In (i) and (ii) the objects should be drawn singly and in simple groups studied in relation to suitable backgrounds as compositions of form and colour. The indoor studies should be supplemented by some practice in drawing outdoor subjects, which will widen the students' powers by leading them to consider other conditions of space, light, atmosphere, etc., than can be experienced indoors.

In (ii) it should be noted that original drawings representing life and movement are not only intrinsically interesting (especially to children), but are of great service in developing the power of retaining and expressing visual impressions, besides furnishing valuable material to be used in the composition of original illustrations.

B. *Creative and Inventive Drawing* will give the students opportunities of utilising the knowledge and skill gained in "A" for the purpose of expressing their own mental conceptions in graphic form. Their own attempts (crude as at first they may be) to make original pictorial illustrations and decorative designs will enable them to realise how far the scope of their imagination is dependent upon the extent of their memory and knowledge, and will consequently help them to understand the difficulties experienced by young children in their efforts to express their ideas by drawing. Some students will find that their natural tastes and abilities lead them chiefly towards *pictorial* expression ; others towards some *decorative* form of Handwork or Needlework. In any case the various branches of the Course of Study will furnish many opportunities for practice in both these directions ; and some subjects are suggested under Head III.—Applications.

C. *Drawing with Instruments*—variously termed Mechanical Drawing, Technical Drawing, Practical Drawing, Workshop Drawing, etc.—is used for many practical purposes in connexion with arts and crafts, professions, trades and industries ; but, as far as students in Training Colleges are immediately concerned, it will be chiefly associated with Handwork (including Needlework), Science and Mathematics ; *see* Head III, below.

For such purposes the use of the mathematical drawing instruments—T-square and set-squares, compasses, protractor, scales, etc.—is, of course, essential ; but these mechanical aids to accuracy should be strictly reserved for their specific purposes, and should not be allowed to interfere with the training of independent judgment by the eye and of free execution by the hand.

The time allotted to this kind of drawing should be considered as a part of the practice in the subject with which it is associated, and should not be abstracted from the limited time allowed for free drawing.

D. *Lettering* of good plain form, both legible and beautiful, based upon well-chosen historical examples, and directly written with a broad pen (or in some cases with a brush), should be practised by the students and used for the titles and descriptions of their various studies. Some skill in this every-day craft is not only likely to be of practical service to the students in many ways, but it may help to establish a standard of good penmanship tending towards the improvement of ordinary handwriting, and it may also lead to a more general appreciation of, and demand for, good printing. Some students will be able to acquire sufficient skill to execute specially designed pages, or even small books ; while, in those cases where the Handwork includes Bookbinding, it will be quite possible for certain students or groups of students to enter the domain of "Book Production," and to carry out the whole of the processes involved in the making of a book—writing, illustrating and binding.

Note as to Materials or Media.—The drawing practice should not restrict the students too much to the use of any particular medium, but the range of their experience in technique should be extended by the use, as occasion arises, of any or all of the

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following materials: brush and water-colours; pastels, chalks, or crayons; pencil, pen-and-ink; and the practice should include—

(*a*) Complete representation in colour,
(*b*) Studies in tone and light-and-shade,
(*c*) Drawing in line (" black and white "),
(*d*) Drawing on the blackboard.

In connexion with technique, emphasis is laid on the importance of MODELLING *in a plastic material, such as clay, in order to acquire a thorough knowledge of actual form by exercising the sense of touch in conjunction with sight, and also to serve as the most direct connexion between Drawing and Handwork.*

II.—THEORY, AND SCHOOL METHOD.

Although it is convenient for clearness in setting out a syllabus to separate Theory from Practice, they should be closely associated in the actual work of the students, and the most important points—some of which are indicated below—may be considered incidentally as they arise in the course of study and practice :—

(i) The establishment of certain principles or laws relating to the appearances of things; to be deduced—as in Science—from a series of observations, and not to be prescribed as rules; *e.g.* :—
  (*a*) Foreshortening and other effects of perspective.
  (*b*) Light-and-shade and reflections.
  (*c*) The effects of light and shade upon colour.
  (*d*) Harmony and contrast of form and colour as observed in nature and in art and craft.
  N.B.—The portions of the Science Course dealing with Light and Colour would be of great assistance if associated with this section (i).
(ii) The main principles of pictorial and decorative composition.
(iii) Fitness, sound construction, and right use of material, as observed in well-designed and well-constructed objects.
(iv) The development of the power of observation.
(v) The visual memory and its relation to the imagination.
(vi) The development of children's appreciation of beauty in form and colour, through—
  (*a*) The observation and representation of beautiful things;
  (*b*) The use of good forms, colours, and arrangements in the simple decorations of the home and school, in clothes, in the costumes and accessories employed in dramatisations, in the making of simple things in Handwork, Needlework, etc.;
  (*c*) The selection of good pictures for school use.

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(vii) The training of children in the use of the various materials employed in Drawing.
(viii) The applications of Drawing in the various school studies and occupations.
(ix) The drawing up of properly graded courses of lessons for a class or a school.
(x) How to make the best use of Drawing in educational visits to Picture Galleries, Museums, and places of historical and architectural interest, etc. (This will vary according to the situation of the College and the subjects in which individual students are specially interested.)

III.—APPLICATIONS TO OTHER STUDIES.

The following suggestions for the application of Drawing to the illustration of other subjects may be found useful in some cases, but different Colleges will naturally follow the lines most suitable to their own circumstances. As it is evident that no individual student will be able to cover the whole ground, it is advisable that each student's illustrative work should be chiefly associated with the subject or subjects in which he is specially interested, and in selecting matter for illustration preference should be given to things which are not already illustrated adequately by existing pictures or photographs.

Handwork (including Needlework).—Original working drawings for the construction of objects, apparatus, garments, etc., designs or patterns for the decoration of various objects of handwork, to be made for a definite purpose and actually worked out in material.

Handwork, Science, Mathematics.—Drawings for the graphic expression of number, quantity, dimensions, etc., chiefly made with instruments—such as plans, elevations, and other projections; plane and solid geometry, graphs, etc.

Nature Study and Gardening.—Life-histories of various creatures, *e.g.*, frog or toad, butterfly or moth, bee or fly, etc.; development studies, *e.g.*, plants from seed or from bulbs, leaves and flowers from buds, etc.

Geography.—Original outdoor sketches of different features of land and water, *e.g.*, mountains, hills, valleys, plains; coast, river and lake scenery; rock formations, contours, sections, etc.; natural phenomena, *e.g.*, clouds, sunsets, etc.

History.—Original outdoor and indoor sketches of historic buildings and parts of them, or of archæological remains; museum studies of weapons, armour, implements, historic furniture, costumes, etc.

N.B.—Illustrative drawings will be regarded as forming part of the Drawing Course as well as of the subject with which the drawing is associated.

Students who desire to obtain a mark of credit in Drawing (Ordinary Course) and students who present themselves for a further examination after the completion of their Course will be tested in Section I, A, of the above syllabus by being required to draw on a half-imperial sheet of paper, white or toned, (i) a natural object, or (ii) a fashioned object or group of objects, to be represented as seen from the point of view at which the student may be seated. The drawing may be made in any medium, and should be as complete as the student can make it. Such students will also be required to work a paper containing tests in illustrative drawing from memory and imagination, as well as questions on the aims, principles and methods of teaching Drawing.

Advanced Course.

This course is intended for students who have a special aptitude for Drawing, and who desire to devote more time to the subject in order to reach a proficiency not attainable by the Ordinary Course. It should include and extend considerably the work of the Ordinary Course, and should provide opportunities for certain students to pay special attention to those portions of the Course in which they are particularly interested.

Students who are entered for this Course will be examined in—

(*a*) Drawing from natural and fashioned objects.
(*b*) Drawing from memory and imagination.
(*c*) The aims, principles, and methods of teaching Drawing.

For the Examination under (*a*) the Examiner may select one or more natural objects, one or more fashioned objects, or both, making a fairly simple group of " still life." The students may use any suitable medium for making the drawings, which will be expected to give a complete representation of the group.

Under (*b*) the students will be required to draw from memory a common object or a group of simple objects; or a plant or portions of plants selected from the following (chosen for both their artistic and botanical interest) :—Bramble (blackberry), buttercup, daffodil, dandelion, horse-chestnut, oak; or, as alternatives, to make an original pictorial illustration of a simple subject or literary extract; or a design for the making or decoration of a simple piece of handwork in some specified material or process, *e.g.*, wood, clay, needlework, basketry, weaving.

All the exercises done during the period of study by each student entered for this Course must be submitted to the Board by 15th June, immediately preceding the termination of the student's College course; and the submitted exercises should be carefully classified according to the groups of study under which they fall.

Training Colleges may submit to the Board for approval schemes alternative to the above. These schemes should be submitted at the beginning of the students' course, and will be approved by the Board if satisfactory.

NEEDLEWORK (INCLUDING HANDWORK SUITED FOR GIRLS AND INFANTS).

(*For Women Students.*)

1. The needlework instruction of students should be specially directed towards the acquisition of skill in teaching needlework, collectively and by demonstration.

2. The practice of the students in teaching needlework to children will be inspected from time to time by the Board. Practical tests may also be set, where it appears desirable, to all or some of the students towards the conclusion of their period of training. Such tests, when applied, will include :—

(*a*) The cutting-out, making up, and working a section of a garment, the mending of an actual garment, or other worn article (*e.g.*, house linen); or
(*b*) A paper of questions, testing the student's theoretical knowledge of how to carry out various needlework exercises and of the methods to be followed in teaching the said exercises to classes of children.

3. In the case of students intending to be teachers of younger children, the College may submit a special syllabus substituting educational Handwork and simple Needlework for the ordinary Needlework course. The syllabus should include Handwork suitable for children up to about the age of nine. In the case of students intending to be teachers of older children, the College may submit a special syllabus including both Needlework and Handwork suitable for children over the age of nine. Students taking either of these syllabuses will be tested both for practical work and for skill in teaching in the same way as students taking the ordinary Needlework syllabus.

HOUSECRAFT.

(*For Women Students.*)

A College proposing this subject must present a syllabus dealing in detail with the following topics :—

(*a*) The elements of house management. Practical housework, including the cleaning of rooms. Lighting, warming, and furnishing a house. Wages and expenditure.
(*b*) The care and cleaning of clothing. Elementary laundry-work.
(*c*) Food budgets. The outline of food preparation. The nutritive and other values of various foods in relation to diet, including the cooking, from simple and cheap materials, of such meals as are needed by working people and their children.
(*d*) The feeding of infants, young children, and invalids.

HANDWORK (SPECIAL COURSE).

(For Men Students.)

The Board are prepared to approve under this head courses of study designed to prepare men students who have a special aptitude for Handwork to give instruction in this subject to the older classes in Boys' Schools. Any Training College desiring to offer a course in this subject should submit a detailed syllabus for the Board's approval.

GARDENING.

Both Sections (*a*) and (*b*) must be done practically.

Students who desire may substitute for Section (*a*) of this syllabus Section A (I) from the syllabus for General Biology (page 34).

(*a*) BOTANY.

1. The general structure and life-history of some common plants, sweet pea, bean, potato, sunflower, and wheat or oat.

2. The structure of the flower; the functions of the various organs of a flower; pollination; structure of common garden seeds; germination of seeds.

3. The structure and functions of stem, root, and leaf; absorption and conduction of water and substances in solution; transpiration; respiration; photosynthesis; geotropism and heliotropism; storage of food substances; bulbs and corms; tubers; annuals, biennials, and perennials.

4. Study of the physical and chemical properties of air, water, and soil in so far as they are necessary for the understanding of the growth of plants. Bacteria in relation to the "Nitrogen cycle" and to other organic changes in the soil. Common fertilizers, and their relationships to the absorbed food of plants.

(*b*) PRACTICAL GARDENING.

5. The ordinary gardening operations and their importance; digging and trenching; application and uses of manure.

6. Preparation of seed beds; methods of sowing seeds; the allowances as to distance and depth of sowing which have to be made for particular seeds; recognition of common vegetable seeds.

7. Thinning and transplanting seedlings; means by which vigorous and sturdy growth is secured; raising plants to form a succession of crops; double cropping; suitable position for crops in relation to water and light; treatment of annuals, biennials, and perennials.

8. Soils and subsoils studied *in situ;* the mechanical composition and classification of soils; properties of soils; the texture of the soil in relation to plant food; aeration and moisture; manuring; effect of lime on soils; temperature of soils.

9. The recognition of common insect and fungoid pests likely to be met with in the garden; the study of their life-history so far as may be necessary to apply preventive or remedial measures; spraying of potatoes.

10. Vegetative propagation of plants; by runners; by layering; by cuttings; by division; grafting and budding; growing bulbs, corms and tubers.

11. Fruit culture; preparation of soil and planting fruit trees and bushes; protection against birds and frost; spraying and applying remedies against insect pests; washing for American blight, lichens and mosses; protecting wounds against canker; the treatment of the soil immediately around fruit trees and bushes.

12. Pruning; methods of pruning; principles involved in the pruning of different kinds of plants and trees; root pruning; the clipping of hedges; window plants and their treatment.

Each student will be expected to cultivate, during the course, a plot of land sufficient to allow of the various gardening operations mentioned above to be carried out in a satisfactory manner. A diary or record of the work done must be kept by each student.

The gardens will be inspected at the time of the examination, and the work done will be taken into account in awarding marks. Students may also receive credit for practical work in bee-keeping or garden carpentry.

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